1 - Mr. Belmont 1 - Mr. Frazier
1 - Mr. Sullivan (Mr. Lenihan)
1 - Mr. Rosen (Mr. Malley)
1 - Mr. Rogge 1 - Mr. Heilman
1 - Mr. Conrad 1 - Mr. Griffith
August 12, 1964
1 - Mr. Jevons 1 - Mr. Shaneyfelt
By Courier Service

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Honorable J. Lee Rankin
General Counsel
The President's Commission
200 Maryland Avenue, N. E.
Washington, D. C.

Dear Mr. Rankin:

Reference is made to your letter dated July 7, 1964, requesting additional examination of the mark appearing on the curbing on the south side of Main Street near the triple underpass at the assassination site in Dallas, Texas. This mark was located and was found to be 23 feet, 4 inches from the abutment of the triple underpass. The Laboratory comparison of the mark as it now appears with the photographs made by James Underwood, a newsman for KRLD-TV in Dallas, and Tom Dillard, a photographer for the Dallas Morning News, establishes they are photographs of this same mark. Four copies of the results of the interviews with Mr. Underwood and Mr. Dillard are attached.

In response to your inquiry, assuming that a bullet shot from the sixth floor window of the Texas School Book Depository Building struck the curb on the south side of Main Street at the location of the mark described above and assuming it passed directly over the President, the bullet would have passed over the President at approximately frame 410 on the Zapruder film. This is 97 frames after the shot that struck the President in the head which is frame 313. At 18.3 frames per second, this represents a lapse of time of 5.3 seconds between frame 313 and frame 410. Based on a direct shot from the sixth floor window to the curb on Main Street, this bullet would have passed over the center of Elm Street at an elevation of about 18 feet from the street level. It is noted that in frame 410 of the Zapruder

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film, Mrs. Kennedy has returned to the seat beside the President and Secret Service Agent Hill is about midway from the back bumper to the President crawling across the trunk lid.

The piece of curbing containing the mark was removed on August 5, 1964, and examined in the FBI Laboratory. This curbing has been designated as Item C321 by the Laboratory. Small foreign metal smears were found adhering to the curbing section within the area of the mark. These metal smears were spectrographically determined to be essentially lead with a trace of antimony. No copper was found. The lead could have originated from the lead core of a mutilated metal-jacketed bullet such as the type of bullet loaded into 6.5 millimeter Mannlicher-Carcano cartridges or from some other source having the same composition.

The absence of copper precludes the possibility that the mark on the curbing section was made by an unmutilated military-type full metal-jacketed bullet such as the bullet from Governor Connally's stretcher, C1, or the bullet or bullets represented by the jacket fragments, C2 and C3, found in the Presidential limousine. Further, the damage to the curbing would have been much more extensive if a rifle bullet had struck the curbing without first having struck some other object. Therefore, this mark could not have been made by the first impact of a high velocity rifle bullet.

It was also determined from a microscopic study that the lead object that struck the curbing causing the mark was moving in a general direction away from the Texas School Book Depository Building. Assuming this mark was made by a fragment of a bullet

from the assassin's rifle, the evidence present is insufficient to establish whether it was caused by a fragment of a bullet striking the occupants of the Presidential limousine, such as the bullet that struck the President's head, or whether it is a fragment of a shot that may have missed the Presidential limousine.

This completes the request in your letter dated July 7, 1964. The piece of curbing is available in the FBI Laboratory. A photograph of the mark on the curbing before removal and a photograph of the curbing after removal are attached.

Sincerely yours,

J. Edgar Hoover

Enclosures (3)